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EXAMINER

ZERVIGON, RUDY

ART UNIT PAPER NUMBER

1763

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Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/087,558	<b>Applicant(s)</b> DANDO ET AL.	
	<b>Examiner</b> Rudy Zervigon	<b>Art Unit</b> 1763	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 24 October 2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 14-21,31-38 and 45-61 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 14-21,31-38 and 45-61 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
2. Claims 14-17, 19-21, 31, 32, 34, 37, and 38 are rejected under 35 U.S.C. 102(a) as being anticipated by Srivastava; Aseem K. (US 6,225,745 B1). Srivastava teaches a reactive precursor feeding manifold assembly (12; Figure 1b; column 3; lines 20-44), comprising; a body (10b; Figure 1b; column 3; lines 20-44) comprising a plenum chamber (inherent - needed to convey gases in 38); a first precursor feed stream (any of the first five, from top to bottom, gas streams feeding into Srivastava's body) on the body (10b; Figure 1b; column 3; lines 20-44) in fluid communication with the plenum chamber (inherent - needed to convey gases in 38) at a first precursor inlet to the plenum chamber (inherent - needed to convey gases in 38); a second precursor feed stream (any of the first five, from top to bottom, gas streams feeding into Srivastava's body) on the body (10b; Figure 1b; column 3; lines 20-44) in fluid communication with the plenum chamber (inherent - needed to convey gases in 38) at a second precursor inlet to the plenum chamber (inherent - needed to convey gases in 38); a purge gas stream (sixth, from top to bottom, gas stream feeding into Srivastava's body) on the body (10b; Figure 1b; column 3; lines 20-44) in fluid communication with the plenum chamber (inherent - needed to convey gases in 38) at a purge gas inlet (sixth, from top to bottom, gas stream feeding into Srivastava's body) to the plenum chamber (inherent - needed to convey gases in 38) which is upstream of both the first and the second plenum chamber (inherent - needed to convey gases in 38) precursor inlets (gas feeding connections to left-most pipe 38; Figure 1b) and angled (90° as detailed by both

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Applicant's Figure 1 and Srivastava's Figure 1b) from the plenum chamber (inherent - needed to convey gases in 38) precursor inlets (gas feeding connections to left-most pipe 38; Figure 1b) such that a purge-gas flow through the purge gas inlet (sixth, from top to bottom, gas stream feeding into Srivastava's body) provides a venturi effect within the plenum chamber (inherent - needed to convey gases in 38) relative to the first and second precursor inlets (gas feeding connections to left-most pipe 38; Figure 1b) – That a “venturi effect” is present in Srivastava's body is evident when comparing the structure of Srivastava's body with Applicant's body 12, Figure 1. When the structure recited in the reference is substantially identical to that of the claims, claimed properties or functions are presumed to be inherent (In re Best, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977); MPEP 2112.01). Further, Applicant's claim of gas identity as being “purge gas” or “precursor gas” is a claim requirement of intended use of the pending apparatus claims. Further, it has been held that claim language that simply specifies an intended use or field of use for the invention generally will not limit the scope of a claim (Walter, 618 F.2d at 769, 205 USPQ at 409; MPEP 2106). Additionally, in apparatus claims, intended use must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim (In re Casey, 152 USPQ 235 (CCPA 1967); In re Otto, 136 USPQ 458, 459 (CCPA 1963); MPEP 2111.02).

Srivastava further teaches:

- i. and the body (10b; Figure 1b; column 3; lines 20-44) comprising a plenum chamber outlet (outlet portion, not labeled, of Srivastava's body) configured to connect with a substrate processing chamber (16; Figure 1b), as claimed by claim 14

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- ii. The manifold assembly (12; Figure 1b; column 3; lines 20-44) of claim 14 wherein the plenum chamber (inherent - needed to convey gases in 38) purge gas inlet (sixth, from top to bottom, gas stream feeding into Srivastava's body) is angled ( $90^{\circ}$  as detailed by both Applicant's Figure 1 and Srivastava's Figure 1b) from the plenum chamber (inherent - needed to convey gases in 38) precursor inlets (gas feeding connections to left-most pipe 38; Figure 1b) by from about  $80^{\circ}$  to  $100^{\circ}$ , as claimed by claim 15
- iii. The manifold assembly (12; Figure 1b; column 3; lines 20-44) of claim 14 wherein the plenum chamber (inherent - needed to convey gases in 38) purge gas inlet (sixth, from top to bottom, gas stream feeding into Srivastava's body) is angled ( $90^{\circ}$  as detailed by both Applicant's Figure 1 and Srivastava's Figure 1b) from the plenum chamber (inherent - needed to convey gases in 38) precursor inlets (gas feeding connections to left-most pipe 38; Figure 1b) by from about  $89^{\circ}$  to  $91^{\circ}$ , as claimed by claim 16
- iv. The manifold assembly (12; Figure 1b; column 3; lines 20-44) of claim 14 further comprising a first valve (any one of 36; Figure 1b) in the first precursor feed stream (any of the first five, from top to bottom, gas streams feeding into Srivastava's body) proximate the body (10b; Figure 1b; column 3; lines 20-44), and a second valve (any one of 36; Figure 1b) in the second precursor feed stream (any of the first five, from top to bottom, gas streams feeding into Srivastava's body) proximate the body (10b; Figure 1b; column 3; lines 20-44), as claimed by claim 17
- v. The manifold assembly (12; Figure 1b; column 3; lines 20-44) of claim 14 further comprising structure (interface box between 34 and 38; Figure 1b) on the body (10b; Figure 1b; column 3; lines 20-44) configured to mount the body (10b; Figure 1b; column

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- 3; lines 20-44) to a substrate processing chamber (16; Figure 1b) with the plenum chamber outlet (outlet portion, not labeled, of Srivastava's body) proximate to and connected with a substrate processing chamber inlet (34; Figure 1b), as claimed by claim 19
- vi. The manifold assembly (12; Figure 1b; column 3; lines 20-44) of claim 14 wherein the plenum chamber (inherent - needed to convey gases in 38) is longitudinally elongated having a longitudinal axis (axis of left-most piping 38 of 12; Figure 1b), the plenum chamber (inherent - needed to convey gases in 38) having a first longitudinal axis end (bottom of left-most piping 38; Figure 1b) and a second longitudinal axis end (top of left-most piping 38; Figure 1b), the plenum chamber (inherent - needed to convey gases in 38) purge gas inlet (sixth, from top to bottom, gas stream feeding into Srivastava's body) being proximate the first end (bottom of left-most piping 38; Figure 1b), the plenum chamber outlet (outlet portion, not labeled, of Srivastava's body) being proximate the second end (top of left-most piping 38; Figure 1b), as claimed by claim 20
- vii. The manifold assembly (12; Figure 1b; column 3; lines 20-44) of claim 20 wherein the plenum (inherent - needed to convey gases in 38) chamber purge gas inlet (sixth, from top to bottom, gas stream feeding into Srivastava's body) is on the longitudinal axis (axis of left-most piping 38 of 12; Figure 1b), as claimed by claim 21
- viii. A reactive precursor feeding manifold assembly (12; Figure 1b; column 3; lines 20-44), comprising; a body (10b; Figure 1b; column 3; lines 20-44) comprising a plenum chamber (inherent - needed to convey gases in 38), the body (10b; Figure 1b; column 3; lines 20-44) having a first end (bottom of left-most piping 38; Figure 1b) and an

opposing second end (top of left-most piping 38; Figure 1b); a plurality of precursor feed streams (any of the first five, from top to bottom, gas streams feeding into Srivastava's body) on the body (10b; Figure 1b; column 3; lines 20-44) in fluid communication with the plenum chamber (inherent - needed to convey gases in 38) at respective precursor inlets (gas feeding connections to left-most pipe 38; Figure 1b) to the plenum chamber (inherent - needed to convey gases in 38); a purge gas stream (sixth, from top to bottom, gas stream feeding into Srivastava's body) on the body (10b; Figure 1b; column 3; lines 20-44) in fluid communication with the plenum chamber (inherent - needed to convey gases in 38) at a purge gas inlet (sixth, from top to bottom, gas stream feeding into Srivastava's body) to the plenum chamber (inherent - needed to convey gases in 38) which is proximate the first end (bottom of left-most piping 38; Figure 1b) and disposed upstream of the plenum chamber (inherent - needed to convey gases in 38) precursor inlets (gas feeding connections to left-most pipe 38; Figure 1b); the body (10b; Figure 1b; column 3; lines 20-44) comprising a plenum chamber outlet (outlet portion, not labeled, of Srivastava's body) disposed at the second end (top of left-most piping 38; Figure 1b) and configured to connect with a substrate processing chamber (16; Figure 1b); and structure (interface box between 34 and 38; Figure 1b) on the body (10b; Figure 1b; column 3; lines 20-44) configured to mount the second end (top of left-most piping 38; Figure 1b) to a substrate processing chamber (16; Figure 1b) with the plenum chamber outlet (outlet portion, not labeled, of Srivastava's body) proximate to and connected with a substrate processing chamber inlet (34; Figure 1b), as claimed by claim

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- ix. The manifold assembly (12; Figure 1b; column 3; lines 20-44) of claim 31 wherein the structure (interface box between 34 and 38; Figure 1b) comprises a projection on the body (10b; Figure 1b; column 3; lines 20-44), as claimed by claim 32
- x. The manifold assembly (12; Figure 1b; column 3; lines 20-44) of claim 31 further comprising a valve (any one of 36; Figure 1b) in the respective precursor feed streams (any of the first five, from top to bottom, gas streams feeding into Srivastava's body) proximate the body (10b; Figure 1b; column 3; lines 20-44), as claimed by claim 34
- xi. The manifold assembly (12; Figure 1b; column 3; lines 20-44) of claim 31 wherein the plenum chamber (inherent - needed to convey gases in 38) is longitudinally elongated having a longitudinal axis (axis of left-most piping 38 of 12; Figure 1b), the plenum chamber (inherent - needed to convey gases in 38) having a first longitudinal axis end (bottom of left-most piping 38; Figure 1b) and a second longitudinal axis end (top of left-most piping 38; Figure 1b), the plenum chamber (inherent - needed to convey gases in 38) purge gas inlet (sixth, from top to bottom, gas stream feeding into Srivastava's body) being proximate the first end (bottom of left-most piping 38; Figure 1b), the plenum chamber outlet (outlet portion, not labeled, of Srivastava's body) being proximate the second end (top of left-most piping 38; Figure 1b), as claimed by claim 37
- xii. the manifold assembly (12; Figure 1b; column 3; lines 20-44) of claim 37 wherein the plenum chamber (inherent - needed to convey gases in 38) purge gas inlet (sixth, from top to bottom, gas stream feeding into Srivastava's body) is on the longitudinal axis (axis of left-most piping 38 of 12; Figure 1b), as claimed by claim 38



***Claim Rejections - 35 USC § 103***

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. Claims 18, 33, 35, 36, and 45-61 are rejected under 35 U.S.C. 103(a) as being unpatentable over Srivastava; Aseem K. (US 6,225,745 B1) in view of Onda; Shinzaburo et al. (US 5,395,482 A). Srivastava is discussed above. Srivastava's gas stream on Srivastava's body (10b; Figure 1b; column 3; lines 20-44) feeding to Srivastava's purge gas inlet through a single-inlet valve (any one of 36; Figure 1b) – claim 45. Srivastava further teaches Srivastava's manifold assembly (12; Figure 1b; column 3; lines 20-44) wherein Srivastava's another valve (any one of 36; Figure 1b) inlet is upstream of Srivastava's one valve (any one of 36; Figure 1b) inlet, - claim 47. Srivastava's manifold assembly (12; Figure 1b; column 3; lines 20-44) comprising structure (interface box between 34 and 38; Figure 1b) on Srivastava's body (10b; Figure 1b; column 3; lines 20-44) configured to mount Srivastava's body (10b; Figure 1b; column 3; lines 20-44) to a substrate processing chamber (16; Figure 1b) with Srivastava's plenum chamber outlet (outlet portion, not labeled, of Srivastava's body) proximate to and connected with a substrate processing chamber inlet (34; Figure 1b) – claim 48. Srivastava's manifold assembly (12; Figure 1b; column 3; lines 20-44) wherein Srivastava's structure (interface box between 34 and 38; Figure 1b) is configured to mount Srivastava's body (10b; Figure 1b; column 3; lines 20-44) to a substrate processing chamber (16; Figure 1b) with Srivastava's longitudinal axis (axis of left-most piping 38 of 12; Figure 1b) being substantially vertical – claim 49. Srivastava's manifold assembly (12; Figure 1b; column 3; lines 20-44) wherein Srivastava's structure (interface box between 34 and 38; Figure 1b) comprises a

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projection on Srivastava's body (10b; Figure 1b; column 3; lines 20-44) - claim 50. Srivastava's manifold assembly (12; Figure 1b; column 3; lines 20-44) further comprising structure (interface box between 34 and 38; Figure 1b) on Srivastava's body (10b; Figure 1b; column 3; lines 20-44) configured to mount Srivastava's body (10b; Figure 1b; column 3; lines 20-44) to a substrate processing chamber (16; Figure 1b) with Srivastava's plenum chamber outlet (outlet portion, not labeled, of Srivastava's body) proximate to and connected with a substrate processing chamber inlet (34; Figure 1b), and wherein Srivastava's structure (interface box between 34 and 38; Figure 1b) comprises a projection on Srivastava's body (10b; Figure 1b; column 3; lines 20-44) - claim 56. Srivastava's manifold assembly (12; Figure 1b; column 3; lines 20-44) wherein Srivastava's structure (interface box between 34 and 38; Figure 1b) comprises a projection on Srivastava's body (10b; Figure 1b; column 3; lines 20-44) - claim 59. Srivastava's manifold assembly (12; Figure 1b; column 3; lines 20-44) wherein Srivastava's plenum chamber (inherent - needed to convey gases in 38) purge gas inlet (sixth, from top to bottom, gas stream feeding into Srivastava's body) is on Srivastava's longitudinal axis (axis of left-most piping 38 of 12; Figure 1b) - claim 61.

Srivastava does not teach:

- i. Srivastava's manifold assembly (12; Figure 1b; column 3; lines 20-44) of claim 14 further comprising a 3-way valve in Srivastava's first precursor feed stream (any of Srivastava's first five, from top to bottom, gas streams feeding into Srivastava's body) proximate Srivastava's body (10b; Figure 1b; column 3; lines 20-44), as claimed by claim

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- ii. Srivastava's manifold assembly (12; Figure 1b; column 3; lines 20-44) of claim 31 wherein Srivastava's structure (interface box between 34 and 38; Figure 1b) comprises a flange, as claimed by claim 33
- iii. Srivastava's manifold assembly (12; Figure 1b; column 3; lines 20-44) of claim 31 further comprising a 3-way valve in Srivastava's respective precursor feed streams (any of Srivastava's first five, from top to bottom, gas streams feeding into Srivastava's body) proximate Srivastava's body (10b; Figure 1b; column 3; lines 20-44), as claimed by claim 35
- iv. Srivastava's manifold assembly (12; Figure 1b; column 3; lines 20-44) of claim 31 further comprising a 3-way valve in Srivastava's respective precursor feed streams (any of Srivastava's first five, from top to bottom, gas streams feeding into Srivastava's body) proximate Srivastava's body (10b; Figure 1b; column 3; lines 20-44), one inlet to the 3-way valve being configured for connection with Srivastava's respective precursor feed stream (any of Srivastava's first five, from top to bottom, gas streams feeding into Srivastava's body), another inlet to the 3-way valve being configured for connection with a purge gas line, Srivastava's another inlet being upstream of Srivastava's one inlet, as claimed by claim 36
- v. A reactive precursor feeding manifold assembly (12; Figure 1b; column 3; lines 20-44), comprising; an elongate body (10b; Figure 1b; column 3; lines 20-44) comprising an elongate plenum chamber (inherent - needed to convey gases in 38), Srivastava's plenum chamber (inherent - needed to convey gases in 38) having a longitudinal axis (axis of left-most piping 38 of 12; Figure 1b), Srivastava's plenum chamber (inherent - needed to

convey gases in 38) having a first longitudinal axis end (bottom of left-most piping 38; Figure 1b) and a second longitudinal axis end (top of left-most piping 38; Figure 1b); Srivastava's plenum chamber (inherent - needed to convey gases in 38) comprising a plurality of precursor inlets (gas feeding connections to left-most pipe 38; Figure 1b) received along Srivastava's longitudinal axis (axis of left-most piping 38 of 12; Figure 1b); respective precursor feed streams (any of Srivastava's first five, from top to bottom, gas streams feeding into Srivastava's body) on Srivastava's body (10b; Figure 1b; column 3; lines 20-44) feeding to Srivastava's plenum chamber (inherent - needed to convey gases in 38) precursor inlets (gas feeding connections to left-most pipe 38; Figure 1b), Srivastava's respective precursor feed streams (any of Srivastava's first five, from top to bottom, gas streams feeding into Srivastava's body) including an elongated segment (piping for gas feeding connections to left-most pipe 38; Figure 1b) joining with its plenum chamber (inherent - needed to convey gases in 38) precursor inlet and which is oriented substantially normal to Srivastava's longitudinal axis (axis of left-most piping 38 of 12; Figure 1b); respective multi-inlet valves positioned proximate Srivastava's body (10b; Figure 1b; column 3; lines 20-44) in Srivastava's respective precursor feed streams (any of Srivastava's first five, from top to bottom, gas streams feeding into Srivastava's body), the respective multi-inlet valves having at least two valve inlets and at least one valve outlet, one of the valve inlets being configured for connection with a reactive precursor source, another of the valve inlets being configured for connection with a purge gas line; a purge gas inlet (sixth, from top to bottom, gas stream feeding into Srivastava's body) to Srivastava's plenum chamber (inherent - needed to convey gases in 38) at

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Srivastava's first longitudinal axis end (bottom of left-most piping 38; Figure 1b) and upstream of all precursor inlets (gas feeding connections to left-most pipe 38; Figure 1b) to Srivastava's plenum chamber (inherent - needed to convey gases in 38); a purge gas stream (sixth, from top to bottom, gas stream feeding into Srivastava's body) on Srivastava's body (10b; Figure 1b; column 3; lines 20-44) feeding to Srivastava's purge gas inlet (sixth, from top to bottom, gas stream feeding into Srivastava's body) through a single-inlet valve (any one of 36; Figure 1b), Srivastava's purge gas stream (sixth, from top to bottom, gas stream feeding into Srivastava's body) including an elongated segment (piping for gas feeding connections to left-most pipe 38; Figure 1b) joining with Srivastava's purge gas inlet (sixth, from top to bottom, gas stream feeding into Srivastava's body) and which is substantially aligned on Srivastava's longitudinal axis (axis of left-most piping 38 of 12; Figure 1b); and Srivastava's body (10b; Figure 1b; column 3; lines 20-44) comprising a plenum chamber outlet (outlet portion, not labeled, of Srivastava's body) at Srivastava's second longitudinal axis end (top of left-most piping 38; Figure 1b) configured to connect with a substrate processing chamber (16; Figure 1b), as claimed by claim 45

- vi. Srivastava's manifold assembly (12; Figure 1b; column 3; lines 20-44) of claim 45 wherein the multi-inlet valves have only two inlets and only one outlet, as claimed by claim 46
- vii. Srivastava's manifold assembly (12; Figure 1b; column 3; lines 20-44) of claim 48 wherein Srivastava's structure (interface box between 34 and 38; Figure 1b) comprises a flange, as claimed by claim 51

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- viii. Srivastava's manifold assembly (12; Figure 1b; column 3; lines 20-44) of claim 45 further comprising structure (interface box between 34 and 38; Figure 1b) on Srivastava's body (10b; Figure 1b; column 3; lines 20-44) configured to mount Srivastava's body (10b; Figure 1b; column 3; lines 20-44) to a substrate processing chamber (16; Figure 1b) with Srivastava's plenum chamber outlet (outlet portion, not labeled, of Srivastava's body) proximate to and connected with a substrate processing chamber inlet (34; Figure 1b), the respective multi-inlet valves when Srivastava's body (10b; Figure 1b; column 3; lines 20-44) is so mounted being at least partially received within peripheral lateral confines of a chamber housing of Srivastava's substrate processing chamber (16; Figure 1b), as claimed by claim 52
- ix. Srivastava's manifold assembly (12; Figure 1b; column 3; lines 20-44) of claim 52 wherein the multi-inlet valves when Srivastava's body (10b; Figure 1b; column 3; lines 20-44) is so mounted are totally received within peripheral lateral confines of said chamber housing of the substrate processing chamber (16; Figure 1b), as claimed by claim 53
- x. Srivastava's manifold assembly (12; Figure 1b; column 3; lines 20-44) of claim 45 wherein Srivastava's plenum chamber (inherent - needed to convey gases in 38) purge gas inlet (sixth, from top to bottom, gas stream feeding into Srivastava's body) is on Srivastava's longitudinal axis (axis of left-most piping 38 of 12; Figure 1b), as claimed by claim 54
- xi. Srivastava's manifold assembly (12; Figure 1b; column 3; lines 20-44) of claim 45 wherein, the multi-inlet valves have only two inlets and only one outlet; Srivastava's

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another valve (any one of 36; Figure 1b) inlet is upstream of Srivastava's one valve (any one of 36; Figure 1b) inlet; and Srivastava's plenum chamber (inherent - needed to convey gases in 38) purge gas inlet (sixth, from top to bottom, gas stream feeding into Srivastava's body) is on Srivastava's longitudinal axis (axis of left-most piping 38 of 12; Figure 1b), as claimed by claim 55

- xii. Srivastava's manifold assembly (12; Figure 1b; column 3; lines 20-44) of claim 55 further comprising structure (interface box between 34 and 38; Figure 1b) on Srivastava's body (10b; Figure 1b; column 3; lines 20-44) configured to mount Srivastava's body (10b; Figure 1b; column 3; lines 20-44) to a substrate processing chamber (16; Figure 1b) with Srivastava's plenum chamber outlet (outlet portion, not labeled, of Srivastava's body) proximate to and connected with a substrate processing chamber inlet (34; Figure 1b), and wherein Srivastava's structure (interface box between 34 and 38; Figure 1b) comprises a flange, as claimed by claim 57
- xiii. Srivastava's manifold assembly (12; Figure 1b; column 3; lines 20-44) of claim 45 wherein, the multi-inlet valves have only two inlets and only one outlet; Srivastava's another valve (any one of 36; Figure 1b) inlet is upstream of Srivastava's one valve (any one of 36; Figure 1b) inlet; and further comprising structure (interface box between 34 and 38; Figure 1b) on Srivastava's body (10b; Figure 1b; column 3; lines 20-44) configured to mount Srivastava's body (10b; Figure 1b; column 3; lines 20-44) to a substrate processing chamber (16; Figure 1b) with Srivastava's plenum chamber outlet (outlet portion, not labeled, of Srivastava's body) proximate to and connected with a substrate processing chamber inlet (34; Figure 1b), Srivastava's structure (interface box

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between 34 and 38; Figure 1b) being configured to mount Srivastava's body (10b; Figure 1b; column 3; lines 20-44) to a substrate processing chamber (16; Figure 1b) with Srivastava's longitudinal axis (axis of left-most piping 38 of 12; Figure 1b) being substantially vertical, as claimed by claim 58

- xiv. Srivastava's manifold assembly (12; Figure 1b; column 3; lines 20-44) of claim 58 wherein Srivastava's structure (interface box between 34 and 38; Figure 1b) comprises a flange, as claimed by claim 60

Onda teaches:

- xv. Onda's manifold assembly (40; Figure 3) of claim 14 further comprising a 3-way valve (V49; Figure 3) in Onda's first precursor feed stream (70/71; Figure 2) proximate Onda's body (41a; Figure 3), as claimed by claim 18
- xvi. Onda's manifold assembly (40; Figure 3) of claim 31 wherein Onda's structure (41a/41b interface; Figure 3) comprises a flange, as claimed by claim 33
- xvii. Onda's manifold assembly (40; Figure 3) of claim 31 further comprising a 3-way valve (V49; Figure 3) in Onda's respective precursor feed streams (70/71; Figure 2) proximate Onda's body (41a; Figure 3), as claimed by claim 35
- xviii. Onda's manifold assembly (40; Figure 3) of claim 31 further comprising a 3-way valve (V49; Figure 3) in Onda's respective precursor feed streams (70/71; Figure 2) proximate Onda's body (41a; Figure 3), one inlet to the 3-way valve (V49; Figure 3) being configured for connection with Onda's respective precursor feed stream (70/71; Figure 2), another inlet to the 3-way valve (V49; Figure 3) being configured for connection with a purge gas line, Onda's another inlet being upstream of Onda's one inlet, as claimed by



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claim 36 – Applicant’s claim of gas identity as being “purge gas” or “precursor gas” is a claim requirement of intended use of the pending apparatus claims. Further, it has been held that claim language that simply specifies an intended use or field of use for the invention generally will not limit the scope of a claim (Walter, 618 F.2d at 769, 205 USPQ at 409; MPEP 2106). Additionally, in apparatus claims, intended use must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim (In re Casey, 152 USPQ 235 (CCPA 1967); In re Otto, 136 USPQ 458, 459 (CCPA 1963); MPEP 2111.02).

- xix. A reactive precursor feeding manifold assembly (40; Figure 3), comprising; an elongate body (41a; Figure 3) comprising an elongate plenum chamber (inherent - needed to convey gases in 41a), Onda’s plenum chamber (inherent - needed to convey gases in 41a) having a longitudinal axis (axis of 41a; Figure 3), Onda’s plenum chamber (inherent - needed to convey gases in 41a) having a first longitudinal axis end (bottom 41a; Figure 3) and a second longitudinal axis end (top of 41a; Figure 3); Onda’s plenum chamber (inherent - needed to convey gases in 41a) comprising a single inlet received along Onda’s longitudinal axis (axis of 41a; Figure 3); respective precursor feed streams (70/71; Figure 2) on Onda’s body (41a; Figure 3) feeding to Onda’s plenum chamber (inherent - needed to convey gases in 41a) precursor inlet, Onda’s respective precursor feed streams (70/71; Figure 2) including an elongated segment (piping for gas feeding connections to 70/71; Figure 3) joining with its plenum chamber (inherent - needed to convey gases in 41a) precursor inlet and which is oriented substantially normal to Onda’s

longitudinal axis (axis of 41a; Figure 3); respective multi-inlet valve (V49; Figure 3) positioned proximate Onda's body (41a; Figure 3) in Onda's respective precursor feed streams (70/71; Figure 2), the respective multi-inlet valve (V49; Figure 3) having at least two valve inlets and at least one valve outlet, one of the valve inlets being configured for connection with a reactive precursor source (50; Figure 2), another of the valve inlets being configured for connection with a purge gas line; a purge gas inlet to Onda's plenum chamber (inherent - needed to convey gases in 41a) at Onda's first longitudinal axis end (bottom 41a; Figure 3) and upstream of all precursor inlet 49; Figure 3) to Onda's plenum chamber (inherent - needed to convey gases in 41a); Onda's purge gas stream including an elongated segment (piping for gas feeding connections to 70/71; Figure 3) joining with Onda's purge gas inlet and which is substantially aligned on Onda's longitudinal axis (axis of 41a; Figure 3); and Onda's body (41a; Figure 3) comprising a plenum chamber outlet (outlet portion, not labeled, of Onda's body) at Onda's second longitudinal axis end (top of 41a; Figure 3) configured to connect with a processing chamber (below 41a; Figure 3), as claimed by claim 45 – Applicant's claim of gas identity as being "purge gas" or "precursor gas" is a claim requirement of intended use of the pending apparatus claims. Further, it has been held that claim language that simply specifies an intended use or field of use for the invention generally will not limit the scope of a claim (Walter, 618 F.2d at 769, 205 USPQ at 409; MPEP 2106). Additionally, in apparatus claims, intended use must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim (In re

Casey, 152 USPQ 235 (CCPA 1967); In re Otto, 136 USPQ 458, 459 (CCPA 1963); MPEP2111.02).

- xx. Onda's manifold assembly (40; Figure 3) of claim 45 wherein the multi-inlet valve (V49; Figure 3) have only two inlets and only one outlet, as claimed by claim 46
- xxi. Onda's manifold assembly (40; Figure 3) of claim 48 wherein Onda's structure (41a/41b interface; Figure 3) comprises a flange, as claimed by claim 51
- xxii. Onda's manifold assembly (40; Figure 3) of claim 45 further comprising structure (41a/41b interface; Figure 3) on Onda's body (41a; Figure 3) configured to mount Onda's body (41a; Figure 3) to a processing chamber (below 41a; Figure 3) with Onda's plenum chamber outlet (outlet portion, not labeled, of Onda's body) proximate to and connected with a processing chamber inlet (42; Figure 3), the respective multi-inlet valve (V49; Figure 3) when Onda's body (41a; Figure 3) is so mounted being at least partially received within peripheral lateral confines of a chamber housing of Onda's processing chamber (below 41a; Figure 3), as claimed by claim 52
- xxiii. Onda's manifold assembly (40; Figure 3) of claim 52 wherein the multi-inlet valve (V49; Figure 3) when Onda's body (41a; Figure 3) is so mounted are totally received within peripheral lateral confines of said chamber housing of the substrate processing chamber (below 41a; Figure 3), as claimed by claim 53
- xxiv. Onda's manifold assembly (40; Figure 3) of claim 45 wherein Onda's plenum chamber (inherent - needed to convey gases in 41a) purge gas inlet is on Onda's longitudinal axis (axis of 41a; Figure 3), as claimed by claim 54

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- xxv. Onda's manifold assembly (40; Figure 3) of claim 45 wherein, the multi-inlet valve (V49; Figure 3) have only two inlets and only one outlet - claim 55
- xxvi. Onda's manifold assembly (40; Figure 3) of claim 55 further comprising structure (41a/41b interface; Figure 3) on Onda's body (41a; Figure 3) configured to mount Onda's body (41a; Figure 3) to a processing chamber (below 41a; Figure 3) with Onda's plenum chamber outlet (outlet portion, not labeled, of Onda's body) proximate to and connected with a processing chamber inlet (42; Figure 3), and wherein Onda's structure (41a/41b interface; Figure 3) comprises a flange, as claimed by claim 57
- xxvii. Onda's manifold assembly (40; Figure 3) of claim 45 wherein, the multi-inlet valve (V49; Figure 3) have only two inlets and only one outlet; structure (41a/41b interface; Figure 3) on Onda's body (41a; Figure 3) configured to mount Onda's body (41a; Figure 3) to a processing chamber (below 41a; Figure 3) with Onda's plenum chamber outlet (outlet portion, not labeled, of Onda's body) proximate to and connected with a processing chamber inlet (42; Figure 3), Onda's structure (41a/41b interface; Figure 3) being configured to mount Onda's body (41a; Figure 3) to a processing chamber (below 41a; Figure 3) with Onda's longitudinal axis (axis of 41a; Figure 3) being substantially vertical, as claimed by claim 58
- xxviii. Onda's manifold assembly (40; Figure 3) of claim 58 wherein Onda's structure (41a/41b interface; Figure 3) comprises a flange, as claimed by claim 60

It would have been obvious to one of ordinary skill in the art at the time the invention was made to make integral any of Srivastava's valves (any one of 36; Figure 1b) with Onda's 3-way valve

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(V49; Figure 3) and add a flange portion to Srivastava's body (10b; Figure 1b; column 3; lines 20-44) as taught by Onda.

Motivation to make integral any of Srivastava's valves with Onda's 3-way valve is for reducing material costs by combining three valves into one, while motivation to add a flange portion to Srivastava's body as taught by Onda is for creating a hermetic seal between Srivastava's body and Srivastava's processing chamber and the exterior environment as taught by Onda (column 7; lines 54-61). Further, it is established that the use of a one piece construction instead of interconnected components is obvious (In re Larson, 340 F.2d 965, 968, 144 USPQ 347, 349 (CCPA 1965), MPEP 2144.04).

***Response to Arguments***

5. Applicant's arguments filed October 24, 2005 have been fully considered but they are not persuasive.

6. Applicant states:

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However, nothing in the Srivastava disclosure teaches a plenum chamber to support the contention of the Examiner. Nor has the Examiner provided support for the contention of inherency.

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In response, the Examiner cites Applicant's own "plenum chamber" (14; Figure 1; [0016]) as showing a pipe to convey gases. Further, the term "plenum"<sup>1</sup> is also well exemplified by Srivastava as Srivastava's plenum chamber (inherent - needed to convey gases in 38) is full of "matter", in this case, gases.

7. With regard to Applicant's statement that the Examiner is treating Applicant's claimed "inlets" as intended use, Applicant is mistaken. The Examiner directs the reader to the repeated conveyance in this and all previous actions, in the prior art, of Applicant's claimed "inlets". The Examiner only refers to Applicant's qualified gas identity before "gas inlets" as being an intended use feature. For Example: Srivastava's precursor inlets (gas feeding connections to left-most pipe 38; Figure 1b) – "precursor" is not weighed because this implies a gas identity which is not a structural limitation of the pending apparatus claims. Further, it has been held that claim language that simply specifies an intended use or field of use for the invention generally will not limit the scope of a claim (Walter , 618 F.2d at 769, 205 USPQ at 409; MPEP 2106). Additionally, in apparatus claims, intended use must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim (In re Casey, 152 USPQ 235 (CCPA 1967); In re Otto , 136 USPQ 458, 459 (CCPA 1963); MPEP 2111.02).

8. Applicant states:

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<sup>1</sup> **Plenum: 1a.** a space or all space every part of which is full of matter. Merriam-Webster's Collegiate Dictionary - 10th Ed. p.894

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Claim 31 additionally recites a plenum chamber outlet opposing the purge gas inlet where the body comprising the plenum chamber has a structure configured to mount the second end of the plenum chamber to a substrate processing chamber. Referring to Srivastava Fig. 1b which is indicated by the Examiner as being relied upon, it is noted that gas box 12 is depicted as being configured for providing gas into a plasma tube 32b. Such does not in any way disclose the claim 31 recited plenum chamber outlet disposed at a second end configured to connect with a substrate processing chamber.

“

In response, the Examiner has reassessed Srivastava's Fig. 1b which teaches a plenum chamber (inherent - needed to convey gases in 38) outlet (outlet portion, not labeled, of Srivastava's body) opposing the purge gas inlet (sixth, from top to bottom, gas stream feeding into Srivastava's body) where the body (10b; Figure 1b; column 3; lines 20-44) comprising the plenum chamber (inherent - needed to convey gases in 38) has a structure configured to mount the second end of the plenum chamber (inherent - needed to convey gases in 38) to a substrate processing chamber (16; Figure 1b). Applicant's "mount"<sup>2</sup> is interpreted by the Examiner as "fixed to" or "attached to". In Applicant's own words, the plenum chamber (inherent - needed to convey gases in 38) has a structure configured to mount, attached to, the second end of the plenum chamber (inherent - needed to convey gases in 38) to a substrate processing chamber (16; Figure 1b).

9. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching,

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<sup>2</sup> **mount** *vb* **6a.** to attach to a support. Merriam-Webster's Collegiate Dictionary - 10th Ed. p.760

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suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the level of ordinary skill in the art suggests that motivation to make integral any of Srivastava's valves with Onda's 3-way valve is for reducing material costs by combining three valves into one...Further, it is established that the use of a one piece construction instead of interconnected components is obvious (*In re Larson*, 340 F.2d 965, 968, 144 USPQ 347, 349 (CCPA 1965), MPEP 2144.04).

10. Applicant states:

“

Claim 45 additionally recites that the purge gas stream elongated segment which joins with the purge gas inlet is substantially aligned on the longitudinal axis of the plenum chamber. This additional feature is not disclosed or suggested by Srivastava and Onda considered individually or in combination. Independent claim 45 is therefore not rendered obvious by the combination of Srivastava and Onda and is allowable over these references.

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In response, the Examiner disagrees. The Examiner has cited that Srivastava's purge gas stream (sixth, from top to bottom, gas stream feeding into Srivastava's body) including an elongated segment (piping for gas feeding connections to left-most pipe 38; Figure 1b) joining with Srivastava's purge gas inlet (sixth, from top to bottom, gas stream feeding into Srivastava's body) and which is substantially aligned on Srivastava's longitudinal axis (axis of left-most piping 38 of 12; Figure 1b) of the plenum chamber (inherent - needed to convey gases in 38).



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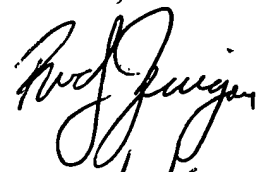
Inclusive, Applicant's Figure 1 piping configuration is identical, pictorially and in claimed structure, to Srivastava's piping arrangement of 12, Figure 1b.

***Conclusion***

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Rudy Zervigon whose telephone number is (571) 272.1442. The examiner can normally be reached on a Monday through Thursday schedule from 8am through 7pm. The official fax phone number for the 1763 art unit is (703) 872-9306. Any Inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Chemical and Materials Engineering art unit receptionist at (571) 272-1700. If the examiner can not be reached please contact the examiner's supervisor, Parviz Hassanzadeh, at (571) 272-1435.

  
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